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Providing mail room solutions for the University of Tasmania.
Welcome to the 2005 end of year edition of Alumni News

Australian universities are about the same size as a medieval city, a small town or a city suburb. They are mini-civilisations – small communities within a broader web.

As the State of Tasmania’s only university, we at UTAS have always felt a strong sense of duty towards the community that we were born from.

And as our State grows in both size and economic wealth, we too are growing. So is our economic contribution. We are planning for “20,000 by 2020” – around 20,000 full-time equivalent students by the year 2020. We are already the third largest non-government employer in the State, and 85 per cent of our budget remains here on the island. Our international students contribute around $50 million to the State’s thriving economy, and for every 100 new UTAS students around 26 Tasmanian jobs are created. As one of the top ten research universities in the country, it is gratifying to note that UTAS research and development makes up some 30 per cent of Tasmania’s innovation.

Australia is becoming an increasingly challenging environment in which to run a university – both economically and ideologically – so we are delighted that the fiscal relationship we have with our State is a healthy one.

But it is not, of course, the be-all and the end-all. We are in the business of creating human capital. As an Alumnus of the University of Tasmania, you are our investment in the Tasmanian community, and in the wider world. And as our community spreads across international borders, the positive changes that you as a UTAS graduate make to the world trickle back to Tasmania as rewarding dividends.

We hope that the time you spent with us is, likewise, yielding excellent returns!

Professor Daryl Le Grew
Vice-Chancellor

Alumni News is the regular magazine for graduates of the University of Tasmania. It is prepared in the Public Relations and University Extension Unit (PRUE).

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Cover: Dr Winifred Curtis at her graduation in 1927, with an illustration by Margaret Stones of Richea × curtisiae, named in Dr Curtis’s honour, from The Endemic Flora of Tasmania. With thanks to Gillian Ward.

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Winifred Mary Curtis was born 15 June 1905 in London, England, the only child of Herbert John and Elizabeth Mary Curtis. Her parents were the sort who believed that girls should have the same educational advantages as boys, something unusual for those early years of the twentieth century. They gave her every opportunity to study as she wished, for which she always paid them tribute. She was educated in London and India, and graduated from University College London with a BSc (Hons) degree in 1928. She subsequently gained MSc (1939), PhD (1950) and DSc (1968) from the same institution. She learnt her Botany from a number of distinguished individuals who were pioneers in their fields: the palaeobotanist Francis Oliver, ecologists Sir Arthur Tansley and Edward Salisbury, the phycologist Felix Fritsch and mycologist Dame Helen Gwynne-Vaughan. It was this illustrious scientific tradition that Winifred imported into Tasmania when she arrived with her parents in 1939.
The passing of Winifred Curtis marks the closing of a chapter in the annals of Tasmanian botany.

She was employed part-time as Science Mistress at Fahan School and part-time as a Demonstrator at the University of Tasmania’s Biology Department. The latter post was only the second academic appointment to be held by a woman at the University. From 1942 to 1966 she worked at the University of Tasmania, being appointed Assistant Lecturer in 1942, Lecturer in 1945, Senior Lecturer in 1951 and Reader in 1956; at retirement she was Acting Head of the Botany Department, a role she had served in on several occasions in her career.

Winifred Curtis was a pioneer researcher in plant embryology and cytology, being the first to apply these disciplines to Australian plant species. Her chief contributions, however, were to plant taxonomy. In 1943, in response to a need for a new Flora of Tasmania, updating Leonard Rodway’s 1903 publication, she commenced work on The Student's Flora of Tasmania, the definitive handbook on Tasmania’s flowering plants and conifers. The first volume was published in 1956, the fifth (and final) volume in 1994. From the 1970s, she cooperated closely with the late Dr Dennis Morris who co-authored the final volumes.

Her contributions to Tasmania and Tasmanian Botany are enormous. She taught generations of students, and today her legacy lives on through cohorts of professional and amateur biologists who were taught either directly by her, or by her students such as the late Professor Bill Jackson.

Her Student's Flora remains the fundamental text for all students and lovers of Tasmanian plants. Her six-volume Endemic Flora of Tasmania (1967-1978 jointly with renowned artist Margaret Stones and sponsored by the late Lord Talbot de Malahide) is not only a scholarly work but also a masterpiece of botanical art and much-sought collector’s item. Her Biology for Australian Students, a high school text, first published in 1948, served generations of high school biology classes. This had been a book that she had written out of frustration at having to teach from English-based texts; ironically she never taught from it herself.

In her life, Winifred Curtis worked tirelessly towards the security of Tasmania’s botanical collections and the establishment of the Tasmanian Herbarium at the Tasmanian Museum and Art Gallery. In 1941, she had been part-time Keeper, working on Saturday afternoons at the Royal Tasmanian Botanical Gardens in a small wooden hut where the Herbarium collections were housed. When the collections were loaned to the University to facilitate her preparation of the Student’s Flora, she maintained responsibility for them, adding many specimens herself, collected on excursions in the family car, using buses or walking. In retirement, she continued to work at the Herbarium as an Honorary Botanist for more than 35 years.

She gained many honours and much recognition for her contributions to Tasmania, including the Royal Society of Tasmania’s Clive Lord Memorial Medal (1966), the Australian Natural History Medallion (1976), membership of the Order of Australia (1977), an honorary DSc from the University of Tasmania (1987), the Australian Plants Award (1988), the ANZAAS Mueller Medal (1994), and Hobart Citizen of the Year (1997). Her name is commemorated by several Tasmanian plants named in her honour; and in the Winifred Curtis Scamander Reserve on Tasmania’s east coast. Her contributions were not only to botany but also to teaching in general and to the advancement of women in education. She remained deeply aware of the privileges of the educational opportunities she received, being of only the third generation of women to have access to higher education. In turn, she tried to pass on this awareness to others, and strived for fairness and equal opportunity.

The passing of Winifred Curtis marks the closing of a chapter in the annals of Tasmanian botany. She outlived her peers and most of her students, and the challenge for the younger generation is to carry her work and principles forward. Winifred embodied the principle of sticking to a task to the end; in the case of the Student’s Flora it took her more than 50 years, something she did not realise when taking it on in 1943. She had an unwavering belief in what needed to be done, even in the face of adversity, or as was more likely the case, in the face of disinterest or mediocrity; she was always prepared to tackle the highest authority on matters of principle. She will also be remembered for her humility, for the way she conducted her research without fanfare but with a dedication to precision. In her view, her considerable achievements were simply a job that needed to be done, and a foundation for others to build on.

Gintaras Kantvilas

(Professor Emeritus Gintaras Kantvilas is Head of the Tasmanian Herbarium).
The University of Tasmania’s Cradle Coast campus has a significant role in establishing collaborative partnerships with regional stakeholders to advance the economic, social, environmental and cultural wellbeing of the Cradle Coast region, driven by knowledge creation.

The Cradle Coast campus – 10 years old in November, 2005 – has always supported collaboration as its modus operandi and this has allowed it to be well placed to advance an integrated approach to tertiary education service delivery across the Cradle Coast region. Collaborative partnerships, particularly with the regional governance authority, the Cradle Coast Authority (CCA) assist the CCA in pursuing its regional competitiveness priorities and add to the critical mass of students and researchers present at the campus who will in turn support the EDGE agenda (Excellence, Distinctiveness, Growth, Engagement) targets for the campus through to 2010.

Aligned to the University’s EDGE agenda, the campus’ collaborative framework endorses the role of a university within a region rather than the role of a regional university. In this context universities are not seen solely as linear entities whose mere existence adds to the competitiveness of a regional economy, but are vehicles for knowledge creation, distribution and facilitation. The Cradle Coast campus of the University of Tasmania and the Cradle Coast Authority are all increasingly focused on knowledge-based community engagement as the basis for creative regional development.

This requires an assessment of the region’s needs and capacity. In order to build up the capacity of the region as a place to study, there is a need to identify what the region needs in terms of skills and training at a higher education level and what the regional community wants in terms of study opportunities by undertaking a regional needs analysis. Needs assessment is regarded as ‘good practice’ community engagement where mutual learning and knowledge exchange provide the basis for the development of sound educational policy objectives.

A needs assessment was conducted in 2005 and will play a significant strategic role in shaping course development, research priorities and vocational training opportunities for the Cradle Coast campus in the region over the next 5 years. The needs assessment will also drive the emergence of a business engagement strategy for the campus that will develop closer ties with the industry sector within the Cradle Coast region. This collaboration will assist in the shaping of the educational product available at the regional campus.

The Cradle Coast campus’ ambitious growth agenda - 1,200 students by 2010 - must respond to the region’s needs through course development and delivery. One of the campus’ responses has been to develop and promote a unique and distinctive undergraduate program, the Bachelor of Regional Resource Management. This course will commence on the campus in 2006 with two discipline streams, natural resource management and business enterprise. It will be anchored by a compulsory regional science skill base throughout the three-year degree program. Students will undertake a work-placement unit in their 2nd year program. This multi-disciplinary degree course will provide a range of skills for graduates that will equip them for engaging in the challenges confronting regional communities into the future. Regional employers have indicated a preference for organisational generalists, rather than technical experts. Organisational specialists will have a capacity to be problem solvers and be project managers in organisations, both private and public, that need to respond to the competitive pressures present in regional economies. The degree program will also assist entrepreneurs interested in pursuing opportunities in the stream areas supported by the degree program. The Bachelor of Regional Resource Management will assist in the shap
Management as a unique and distinctive degree program for the region is prefaced on the view that access to knowledge and learning, and the generation of creative and entrepreneurial action with it, is now the main attribute underpinning the success of regions in the global environment. Graduates will be equipped for local and international regional challenges.

Valuing knowledge in the region is a key objective for collaborations in research. Research is a key driver and supporter of undergraduate programs and provides opportunities for the campus to specialise in policy and issues-related research that assists the region in terms of its prioritising of policy issues and promoting competitive advantage. The campus is fortunate to have researchers already present within the Tasmanian Institute for Agriculture Research (TIAR) who greatly assist a significant sector of the region’s economy.

Collaboration in research, again between the University and the CCA, has advanced two important projects for the region: A Centre for Food Innovations Systems (see below) within TIAR and an Institute for Enterprise and Regional Development, at the campus. These research centres will assist the region in supporting its competitive advantages in key industry sectors such as agriculture and food processing and promote collaboration within approaches to regional governance; business enterprise development and regional development issues within the Cradle Coast region. Both these centres will bring academic research expertise to the campus enhancing its research capacity and its ability to assist growth in the region, aligned to the region’s competitive advantage.

The Cradle Coast campus is well placed to continue playing a significant role in the regional economy. Its focus on collaboration as the key driver of knowledge diffusion within the region means that it not only supports the wellbeing of the region, its communities and people, but also has been able to demonstrate how collaboration advances an integrated role for a regional campus. The Cradle Coast campus works hand in hand with the key regional stakeholders in a range of priority areas for research and teaching that assists regional growth and promotes the value of knowledge creation as the key driver of wellbeing for the region. Both students and employers in the region recognise that this collaborative approach can achieve regional needs, incorporating individual and industry needs over the next 10 to 15 years as priorities and opportunities emerge and change over time.

Forkful of Funding for Food Innovation
A partnership between the Australian Government, local industry and UTAS to establish a major new agricultural research centre promises to make a real difference to primary industries.

The north-west or Cradle Coast region is Tasmania’s “bread basket”, producing around 42 per cent of the State’s agricultural products and some of the world’s best primary produce.

But to be globally competitive, the food industries need to be innovative.

Working in partnership with the Cradle Coast Authority, the region’s local government leader, UTAS has launched a $6.2 million initiative: the Cradle Coast Centre for Food Innovation Systems.

The Centre is based on the University’s Cradle Coast campus.

Director of the campus Megan Cavanagh-Russell said the Centre for Food Innovation Systems brings researchers and students into collaboration with regional businesses and industry partners.

“The economy of this region is heavily reliant on primary industries that, in turn, depend on the sustainable management of the region’s soils, vegetation, waterways and other natural resources for their long-term viability.”

She said the Centre aims to increase the competitiveness of regional agrifood industries through innovation and value-adding.

The Centre will also provide a critical mass of research and training activity in the north-west.
UGROW: the Economic Impact of UTAS

By Saul Eslake

UTAS graduate and Chief Economist with the ANZ Bank Saul Eslake looks at the effects of the University of Tasmania’s growth on the Tasmanian economy.

Earlier this year, the University commissioned the Centre of Policy Studies at Monash University to model the impact of faster growth at UTAS on the Tasmanian economy.

Similar studies have been undertaken in other States and overseas, although a distinguishing feature of this study was the use of a ‘cutting-edge’ dynamic regional computable general equilibrium (CGE) model of the Tasmanian and national economies to trace out what the effects of faster growth in student numbers and spending more on research and development at UTAS would be.

The study involved modelling of two alternative scenarios for growth in the University’s operations over the next 15 years. In the first, or ‘baseline’, scenario, the number of ‘equivalent full-time student units’ (EFTSUs) grows at a sedate pace of 1.1 per cent per annum, on average, to a total of 13,860 by the year 2020 (compared with 11,600 in 2004). This can be thought of as the result of ‘business as usual’. In the second, or ‘growth’, scenario, student numbers grow at an average annual rate of 3.5 per cent, to a total of 20,000 EFTSU by 2020.

Faster growth in student numbers will affect the Tasmanian economy in four main ways.

First, the University’s operating and capital expenditures will increase to accommodate the additional student load. This is estimated to boost aggregate spending in the Tasmanian economy by $1.09m per annum by the year 2020, principally through the ‘multiplier’ effects generated by spending from increased staff salaries.

Second, there will be increased spending (on living expenses and the like) by Tasmanian students who would otherwise have gone to mainland or overseas universities, and by additional interstate and overseas students. This additional spending is estimated to add around $56m per annum to the Tasmanian economy by 2020. Spending by visiting friends and relatives of the additional interstate and overseas students studying in Tasmania is projected to add a further $1m per annum by 2020. The Monash study also notes a further, relatively small, gain of around $230,000 per annum by 2020 from an increased number of interstate and overseas delegates attending conferences organised by the University’s academic staff.

Third, to the extent that faster growth in the University’s operations is paralleled by an increase in its research activities, there will be ‘supply-side’ benefits to the Tasmanian economy arising from the increase in the ‘stock of knowledge’. A more rapid increase in the University’s R&D spending – from $35m in 2004 to $48m in 2020 in the ‘growth scenario’, as against virtually no change in the ‘baseline’ scenario – is estimated to add around $7.6m annually to the Tasmanian economy by 2020 via increased productivity.

Finally, an increase in the number of students graduating from the University will, to the extent that they remain in Tasmania, provide a further boost to the productivity of the Tasmanian workforce. Allowing for the fact that nearly all overseas, and most interstate, students will leave Tasmania, and that (regrettably) over a ten-year period between 70 and 85 per cent of local graduates will also leave the State, there would be around 1,400 more graduates living and working in Tasmania by 2020 under the ‘growth scenario’.

The Monash study estimates the gain to the Tasmanian economy from this last factor as being about $10m per annum by 2020.

Of course, some of the increased spending in Tasmania flowing from any increase in the University’s scale of operations will ‘spill over’ into goods and services produced interstate or overseas. The model used in the Monash study also allows for the possibility that the increased spending in Tasmania will slightly raise prices and wages in the Tasmanian economy, raising the costs of traditional commodity-based exporters and thus leading to a small contraction in the volume of those exports (relative to what would have been the case otherwise).
UTAS has launched the first full degree that is available only at the Cradle Coast campus.

The new Bachelor of Regional Resource Management is a three-year, multi-disciplinary degree designed to train regional people for regional-based careers.

Campus Director Megan Cavanagh-Russell said the announcement heralded a new era for the campus.

“In the past students have had restricted options to complete degrees on this campus - most have had to move or commute to either Hobart or Launceston after their first year of study.

“Now we have grown in response to community demand. The Bachelor of Regional Resource Management will deliver what the community has identified as a real need in our region - skilled employees and entrepreneurs who can confidently lead the area’s future growth and development.”

Course Coordinator, Dr Tony McCall, said the new degree will produce graduates who will be able to harness the natural advantages of the Cradle Coast region.

“The Cradle Coast region is richly endowed with enterprise opportunities in areas such as agriculture, forestry, eco and adventure tourism and natural resource management.

“This degree is about training regional people for real jobs – not just in the Cradle Coast region but in regional areas all over the world,” Dr McCall said.

The Bachelor of Regional Resource Management was launched by Saul Eslake, Chief Economist with the ANZ Bank, who stressed the importance of regional issues in the global economy.

“In the 21st century, when political changes and technology are making it possible for an increasing range of products to be sourced from almost anywhere in the world, commodity producers in rich countries have very little prospect of survival unless they are able to persuade consumers that their products have distinctive characteristics,” he said.

“On the north-west coast, success stories include cheese, tulips, onions, Japanese strawberries, and even water. At the other end of the spectrum Elphinstone has shown that global markets in highly sophisticated engineering equipment can be conquered from Burnie.”

Mr Eslake said, “Some students who complete this course will, inevitably, find their careers taking them away from the north-west coast. Hopefully, they will retain strong links both with the north-west coast and with the University, so that they will be ambassadors and advocates for both in whatever locations their careers take them.”

The Monash study finds that the overall impact of the expansion in the University’s student numbers is to boost Tasmania’s gross product by about $130m (or 0.9 per cent) per annum by the year 2020, and to create an additional 1,600 (full-time equivalent) jobs.

Netting out these various effects, the Monash study finds that the overall impact of the expansion in the University’s student numbers is to boost Tasmania’s gross product by about $130m (or 0.9 per cent) per annum by the year 2020, and to create an additional 1,600 (full-time equivalent) jobs. It would also lift State Government revenues by around $8.3m annually by 2020.

The results of the Monash study allow the computation of some useful ‘rules of thumb’ to illustrate the impact of expanding the University’s operations. For example, every 100 additional EFTSU contributes approximately $1.6m per annum to the Tasmanian economy, creates an additional 26 (FTE) jobs in Tasmania, and boosts State Government revenues by around $100,000 per annum.

The Monash study thus provides useful material for the University to present its case for increasing student numbers to the State and Commonwealth Governments, as well as helping to quantify the broader economic benefits of higher levels of educational participation and attainment among the Tasmanian community.
A message from the Director, Professor Douglas Knehans

The UTAS Conservatorium of Music recently celebrated its 40th Anniversary. At a Gala Concert the Conservatorium commemorated past and present staff and students as they look forward to the next 40 years!

As we engage with the 21st century, the Conservatorium’s mission, role in the community and place in the university necessarily reflect the complexities of this century and the pressures modern students and institutions face.

So what is music in this new century and where does the Conservatorium fit into this picture? The Vice-Chancellor’s EDGE agenda drives how we find our place. Good music has always been about the exceptional: the exceptional performer, the exceptional personality, the exceptional mind. This translates to excellence, the first E of the EDGE Agenda where we as a school strive towards the high bar even as we constantly continue to raise it. Excellence has always been a hallmark of the Conservatorium. As I look over the historical documentation of the school, this excellence began and was based in a broadly defined ‘Classical’ music profile. As we diversify our musical practice into ever-increasing sub-cultures of Jazz, Rock, Thrash, Ska, Bop, etc. on the Contemporary front and Early music, Classical music, Romantic music, 20th Century music (now an historical style), Avante-Garde, electronic, interactive and computer music on the ‘Classical’ side we look to broader yet deeper leadership and mentorship from staff. Within this context our school mission becomes a vastly more complex yet refreshingly rich one: we need to, as best we can, approach and represent all styles of music and all levels of practice: we need to embrace both utilitarian, purpose-driven music as well as the highest order of abstract musical expression.

Distinctiveness is the next driver of EDGE and we are excelling and growing this as well. Our Southern Gospel Choir, recently featured on ABC TV’s 7.30 Report, is an outstanding exemplar of this. No other school in the country boasts such a distinctive ensemble. Our Wrest Point-Conservatorium Big Band and our Conservatorium Chamber Soloists also point the way to a distinctiveness rooted in excellence of small group ensemble work.

Growth is the G in EDGE and we have grown since 2000. The new courses we have created have played their part in this growth: the Bachelor of Music/Bachelor of Teaching combined degree re-establishes the very initial foundations of the Conservatorium as an educationist’s training ground. This course has very healthy enrolments for its first year out, as does our Music Theatre Major, an area we are sure will continue to grow apace in order to meet the university’s exciting and ambitious growth agenda.

Finally, the last E in EDGE is for Engagement. Since 2000 many community engagement activities have been created or re-established at the Conservatorium: The Young Conservatorium’s rebirth has been an exceptional success. The Winter String School has quadrupled its enrolment over four years and the new Easter Jazz School and Summer Rock School continue our reach deep into the community. Our engagement with professional peer institutions has also been exceptional with the birth of the TSO scholarship program, collaborations with IHOS Opera and Ten Days on the Island. Finally our scholarship program for gifted and talented students – our Prelude and Overture programs – has a stable and exceptional pool of pre-tertiary music students engaged with UTAS before they have even left school.

I am ambitious in hoping that by our 45th year we may see the real birth of a quality facility that will allow the diversity of the Conservatorium’s voices to sing in unison. And that song will be a marvellous sound.
The Australian Centre for Research on Separation Science (ACROSS) at the University of Tasmania is taking the State into this new era of microfluidics research with the development of their ‘Lab-on-a-Chip’ systems.

A Lab-on-a-Chip is a network of tiny micro-channels (around 20-500 micrometres wide and deep). Tiny samples for analysis are transported through these microchannels as purification, separation or chemical reactions take place.

Conventional chemical analysis uses lab glassware and large bench-top instruments. Transfer between different steps in the analysis usually involves manual processes.

In the Lab-on-a-Chip approach, all of the steps in the analysis are integrated and the whole process takes place inside the chip, under the control of a computer.

On a single chip, the same test can be run in parallel hundreds of times. So test results can be definitive in much less time.

The University’s Professor Paul Haddad says the Lab-on-a-Chip’s tiny size – just a few centimetres – has several distinct advantages. With samples thousands of times smaller than the average drop of water, the main benefit is of course, speed.

“Analyses can be performed much more rapidly on the microscale than on the ‘macroscale’ of more conventional testing.

“An average drug testing device takes around 30 minutes to test a sample. With a Lab-on-a-Chip, that test could take 30 seconds,” he said.

Professor Haddad says the potential for these microdevices is phenomenal.

“Current microfluidics projects at ACROSS include applications in clinical diagnostics for drug monitoring, advanced separation techniques for complex biological samples and proteomics (the study of proteins within human genes) and analysis of post-blast residues.

“One of the most exciting aspects of a Lab-on-a-Chip is the potential to create portable or even hand-held devices for on-site use. The forensic possibilities are endless.

“After the Bali bombings, it took investigators 6 weeks to find exactly the kind of fertiliser used to create the bombs, so it took 6 weeks to be able to follow that lead. Lab-on-a-Chip technology would have found the exact chemicals within minutes.”
While the Chip Lab is still in its infancy, the prediction is proving accurate, with the project’s key researchers rejecting offers from prestigious institutions overseas to participate in cutting-edge research at UTAS. Its key researchers, Dr Mirek Macka, Dr Rosanne Guijt, Dr Emily Hilder and Dr Michael Breadmore, all hold Australian Research Council Postdoctoral Fellowships. The team is led by UTAS Chemistry Professor Paul Haddad.

The sheer persistence of Dr Macka, who has a long-held interest in chips, is credited as the driving force behind the project.

“It was always my dream to open the chip lab and I kept patiently asking until Paul (Haddad) said with the type of research we were doing, it could no longer be avoided,” says Dr Macka.

Given the green light to investigate the work of chip laboratories in Europe, Dr Macka met Dr Rosanne Guijt, the team’s other foundation member, in The Netherlands and encouraged her to join the project. Her interest in the design and fabrication of microdevices, electrophoresis and in the development of miniaturised total analysis systems for real time monitoring provided an important technical basis for establishing the lab.

Dr Hilder still faces endless questions about why she chose to return from the USA’s top chemistry institution, Berkeley.

“I looked at all the options and this one was the best. You wouldn’t find too many teams of young people and of this calibre anywhere in the world and that was a lot of the incentive. It’s a bonus that Tassie’s a great place to live and work and this uni has got a nice feel about it,” Dr Hilder said.

Dr Breadmore’s decision was influenced by his desire to give something back.

“After completing his PhD in Tasmania, Dr Michael Breadmore held microfluidics positions in the United States, Switzerland, and London, before turning down a position in Canada to return to Tasmania last year.”
He believes ACROSS Director Professor Paul Haddad is central to the team’s success.

“He deserves a lot of credit for looking towards the future of chemistry in Australia. Rather than saying ‘I’m just going to worry about me and my career,’ he really does put a lot of effort into helping people at this stage of their career and looking towards the future.”

Dr Breadmore says the chip is like a little calculator which has lots of tiny processors in it that can be coupled together to make a more complicated system.

“Your computer box is lots of little electronic components. What we’re building is lots of chemical components in a similar kind of integrated fashion. Using all those components, you can actually do a lot of complicated things.

“So it can work with taking all the processes involved in DNA analysis and integrating them together onto a single chip. It’s the same for blast analysis – completely different applications, but similar chemical processes.

“When you break it down to a very fundamental process level, you can actually develop something that’s almost universal.”

Dr Hilder believes the beauty of the chip is that it makes things smaller:

“You can make them faster; you can make things portable. For example in a country like Australia, the Flying Doctors need portable medical diagnostics they can carry in their plane.”

It could be another five to ten years before some of the chip applications are market-ready. The researchers are at a point where they need to develop methods of reading the information on a chip.

“It’s all the things you need to actually look at what’s going on the chip,” Dr Breadmore says.

“Just being able to make the chip is half the problem, being able to use the chip is the other half and that’s the part we’re now starting to do,” Dr Breadmore says.

“You can separate all the components on the chip, but at the end of the day you’ve got to be able to look at what you’ve separated, so for example if we shine a laser on the chip through the microscope, the different components on the chip respond differently.”

The team has received a number of inquiries from people interested in joining their research, but Dr Hilder says it’s a matter of having the right funding.

“We could always use more people - we can find gaps in what we know.”

One of the team’s greatest strengths is its depth of complimentary skills and knowledge. Dr Guijt’s main interest is in explosives detection, Dr Hilder and Dr Breadmore prefer clinical and pharmaceutical diagnostics, while Dr Macka focuses on developing the chip for remote-controlled diagnostics.

“All science is a race to do the same kind of thing, but no-one else necessarily has the same skills and expertise in one spot,” Dr Breadmore explained.

“We’ve got a collection of people here who each have overlapping skills and you’re probably going to be fairly challenged to find that elsewhere around the world. We complement each other really nicely and that’s difficult to find.”

However, he acknowledges that it’s a risky business. It’s highly competitive, expensive and takes a long time to establish.

“We don’t completely understand it yet so it doesn’t always do what you think it should.”

Dr Hilder likens it to a puzzle rather than a race.

“Different people are going to get different bits.”

But they remain confident their research will provide valuable scientific insight.

“You build up the knowledge eventually. If you’ve got a good group of enough people, you can make things work,” Dr Hilder says.

One of the team’s greatest strengths is its depth of complimentary skills and knowledge. Dr Guijt’s main interest is in explosives detection, Dr Hilder and Dr Breadmore prefer clinical and pharmaceutical diagnostics, while Dr Macka focuses on developing the chip for remote-controlled diagnostics.
A Mack truck hitting a mosquito...

That’s the way UTAS astronomer Dr Stefan Dieters described the Deep Impact probe crashing into the Tempel 1 comet in June.

“In terms of masses and speeds it’s like a mosquito hitting a Mack truck. It’s not going to divert the comet one iota,” he predicted.

And he was right. UTAS scientists were part of the world-wide effort to monitor the probe’s collision with the comet, in an attempt to learn more about the origins of the solar system. The structure and contents of the comet, thrown up by the impact, provided valuable data about the nature of comets themselves and the universe in general. The Deep Impact spacecraft was fitted with sensors and data collectors, which monitored the entry flight and the impact itself. Dr Dieters was part of the team that monitored the flight for about two months.

“Comets represent the original material that made up the solar system; it was interesting just to see what happened;” Dr Dieters says. The Tasmanian team were working with colleagues in Perth, South Africa and Chile, while the real action took place around 133 million kilometres from Earth.

A Titan effort! UTAS shoots for the Moon

At the start of the year there was another big night out for astronomers at UTAS.

The University of Tasmania team played a vital role as the Huygens probe plunged through the clouds of Titan, Saturn’s largest moon.

Manned by staff from the University’s School of Maths and Physics, UTAS telescopes at Mt Pleasant and Ceduna were an essential part of an international network of 17 radio telescopes. The array pinpointed exactly when and where Huygens entered Titan’s atmosphere as it parachuted to the surface.

As the Earth rotated, different groups of telescopes were able to point towards Titan and track the signal Huygens transmitted to the Cassini spacecraft, which was in orbit around Saturn. Information was combined with data from Parkes, Narrabri and Coonabarabran in NSW as well as the Cassini orbiter and used to calculate the speed of the winds in Titan’s atmosphere.

The UTAS radio telescope at Cambridge is the most southern in the array, so at some points in the descent Tasmania was the only point of contact the spacecraft had with Earth.

To celebrate the University’s role in the historic space flight, the School of Mathematics and Physics beamed the whole space show down from big space to the big screen, with live broadcasts from mission control in Darmstadt, Germany.
UTAS scientists this year discovered a brand new planet orbiting a distant star in our galaxy.

The discovery was part of a world-wide astronomy effort that involved amateur and professional groups. The Probing Lensing Anomalies Network, or PLANET project is a global network that monitored the anomaly in the light from a distant star.

The discovery is only the second planet to be found using “microlensing”.

The University’s Dr Stefan Dieters was up at all hours watching the light from the star change with the microlensing techniques.

“If one star passes directly in front of a background star its gravity acts like a giant lens, magnifying the background star’s brightness. There is a brightening and fading of the background star’s light.

“These alterations in light are called microlensing events. They are rare: only 1 in 10 million stars monitored will have one, and they last only a few hours. So to find planets you need to intensively monitor these microlensing events,” Dr Dieters said.

Astronomers all over the world were watching the anomaly, but it was the UTAS team’s data that provided the final proof.

“When our data was reported back to headquarters at the Paris Institute for Astrophysics, who are coordinating the project, everybody had agreed that the light curve could only be explained by a planet,” Dr Dieters said.

The microlensing method is the only technique capable of finding Earth-mass planets.

“This discovery gives us great confidence that given some luck we can actually find an Earth-mass planet,” said Professor John Dickey, Head of Physics at UTAS.

“Finding out how many stars have planets, and then how many have Earth-mass planets will help to figure out how likely intelligent life is within our galaxy.”

The planet is suspected to have a mass three times that of Jupiter or about 1000 times the mass of the Earth. Like Jupiter it is a gas giant, and sits at much the same distance from its ‘sun’.

The planet’s name follows the naming convention for planets that orbit stars: the star name plus a letter. So this planet will be called OB05-071A.

At present it is thought that the parent star the planet is orbiting is about half the mass of the Sun. It is situated towards the centre of the Milky Way, in the direction of the constellation Sagittarius, between 15,000 and 25,000 light years away.
Always a man of science, Dr Phillips chose the University of Tasmania’s Physics Major for his undergraduate degree.

A vacation spent working at the Anglo-Australian Observatory in Sydney may have helped cement his future path, but it wasn’t until he reached his honours year that Phillips really considered doing astronomy.

“While JIVE and NASA were in charge of the project, European telescopes couldn’t see the descent, so Australia and the USA played a key role in collecting the data,” he said.

The University of Tasmania data, collected by its Mt Pleasant telescope near Hobart and one at Ceduna in South Australia, became unexpectedly significant during the course of the experiments.

“A misconfiguration on the Cassini spacecraft led to the loss of about 20 minutes worth of data, however information recorded at Hobart and Ceduna was very important in helping to plug that gap.”

Always a man of science, Dr Phillips chose the University of Tasmania’s Physics Major for his undergraduate degree. A vacation spent working at the Anglo-Australian Observatory in Sydney may have helped cement his future path, but it wasn’t until he reached his honours year that Phillips really considered doing astronomy.

“The Radio Astronomy Group’s got a strong reputation and they were offering interesting projects,” he said – and thus an astronomer was born.

“It’s a fascinating job, it’s challenging, makes you think and you get to work with a team, which is always fun, so it’s not just working by yourself.”

“It’s a world of opportunity, very hands on, practical in the sense that you’ve got to deal with real equipment. You’ve got to take data, process it, understand how the software works and sometimes you have to write the software to process and interpret the data. There’s a whole range of skills that come into play.”

Much of Phillips’ job is quite technical - working with engineers and figuring out ways of undertaking the necessary work.
“Engineers don’t always know or understand exactly what the astronomers want, so being an astronomer working with astronomers, I can provide that link.”

A former Bolton Fellow, Phillips’ current role is as VLBI Project Scientist at ATNF. His latest project involves putting in very broad internet band links between all of the CSIRO’s Australian Observatories.

“At the moment we’ve got relatively slow network links, so we’re upgrading to make the system two thousand times faster.

“The advantage of the improved links will mean we can observe much larger areas in far greater detail.

“Currently the data processing happens in real time and there’s typically a delay of a few months between taking the observations and actually processing the data. That’s a problem because the astronomers get impatient and more importantly, we don’t know if anything’s going wrong with the observations until we process them.

“With the upgrade, we’ll know exactly what’s happening and if there’s a problem.

“It also means we can operate the telescopes remotely so if some galaxy flares, we can immediately start the telescope observing, rather than having to send someone up with tapes, and we know if the signal’s working properly.”

Longer term the upgrade is part of Australia’s efforts to develop capacity to compete to potentially become the site for the international Square Kilometre Array (SKA) radio telescope project.

Phillips doesn’t rule out returning to Tasmania with his wife and young daughter, but says it’s a matter of the right opportunity coming along.

Much of Phillips’ job is quite technical - working with engineers and figuring out ways of undertaking the necessary work.

“When engineers don’t always know or understand exactly what the astronomers want, so being an astronomer working with astronomers, I can provide that link.”

“It’s the lifestyle – Hobart’s a nice-sized city, it’s easy to get around, good climate. Ten minutes away you can go bushwalking, there’s great food and wine – I’m a great Tassie fan.”

To date Phillips’ career has been focused on astronomy, but his future options are broad.

“Other people I know who’ve done astronomy have got into things like satellite imaging or remote sensing. There are a lot of research-type positions that can flow from an astronomy background. I’ve also done a lot of work with computers so that’s an area I can pursue – taking a look at the whole problem with scientific modelling and software designing.”

However Phillips believes it can be a problem that many employers use recruiting firms to find scientific staff.

“If you have non-standard skills and don’t fit into the boxes they’re ticking off, it can be difficult to move into new roles.”

But he says such difficulties can be overcome. In the meantime, the multi-skilled astronomer says he’s quite happy not to be categorised into other people’s boxes.
Two University of Tasmania geologists, Bronwyn Kimber and her partner Andy Wakefield, have recently returned from a year of mapping the magnetism of Macquarie Island.

On Macquarie Island it is unusual for wind speeds to drop below 20 knots, and gale force winds are common.

A UTAS geologist couple have voluntarily walked 3000km for their research.

Two University of Tasmania geologists, Bronwyn Kimber and her partner Andy Wakefield, have recently returned from a year of mapping the magnetism of Macquarie Island.

The brief: “Go bushwalking for a year.”

As well as walking the same distance as from Melbourne to Perth, the intrepid pair completed three circumnavigations of the island in a rubber boat. On their travels they also established and maintained four seismometers around the island to record the tremors of Australia’s most earthquake-prone landmass.

But Bronwyn and Andy mainly went to Macquarie for the magnetic rocks.
When commenting on Macquarie Island, many people speak of the amazing abundance of wildlife and spectacular scenery. But the unique, deep-ocean-floor rocks are the main reason for Macquarie Island’s World Heritage status. Such rocks tile 70 per cent of our Earth, but they remain mysterious because they are so inaccessible.

“The most abundant rock type on the island is basalt, one of a sequence of rock types found on the island that together form ‘oceanic crust,’” says Bronwyn.

“Macquarie Island is special because it is the only known ophiolite, or entire cross-section of rocks making up the oceanic crust, still in its original ocean basin.

“The fact that it’s been rotated and tilted so that it protrudes above the ocean provides geologists with a unique opportunity to study the full ophiolite sequence without having to descend to the bottom of the ocean.”

Different types of ocean floor rocks have different magnetism. The aim of Bronwyn and Andy’s research (a collaboration between UTAS, the US Geological Survey, and Duke University USA) was to produce a detailed map of the island’s magnetism, and use it to improve the solid geology map of the island.

“Macquarie Island is surrounded by a sharp apron of poorly charted shallow rocks, so there is no ship-borne data set, that reached the Macquarie Island shore.

Most measurement of rock magnetism in the modern world occurs by plane or helicopter – a standard mineral exploration tool.

However, to safeguard the delicate ecosystems of Macquarie Island, the Macquarie Island management plan forbids low flying except in approved corridors. In addition, some wildlife populations are so fragile that even foot access is not permitted except for periods when the animals and birds are absent. All of this meant that the magnetic survey could only be completed on foot over a full year, and that Bronwyn and Andy had to manage the survey carefully to coincide with access periods of the high conservation status areas.

Bronwyn and Andy spent much of their time walking over the island with a magnetometer strapped to their back. They carried a handheld GPS to record their track, and at the end of each day downloaded the magnetic and GPS data onto the laptop, plotting up the total magnetic intensity on a geological map of the island.

The pair had some hard times. Conditions on the island commonly exceed the worst of any Tasmanian high alpine winter; but day lengths are much shorter, and average wind speeds far higher. It is unusual for wind speeds to drop below 20 knots, and gale force winds are common. Steep ice-bound escarpments gird the island, and had to be negotiated every day, with heavy packs, and often in thick mist, to move from the Australian Antarctic Division base huts to the survey areas. Many an expeditioner will testify to the ligament-wrenching capacity of the rugged slopes!

Their aim was to walk evenly spaced lines of data all over the island down to the smallest spacing possible.

“The basalts that make up the lower two thirds of Macquarie Island are in general poorly exposed, so we aim to use the magnetic information to better determine the basic geometry and age relationships in this section.”

The finished product, a map of the total magnetic intensity all over Macquarie Island, provides further clues as to the nature of the oceanic plate above which the island resides.

With this data, geologists such as supervising researchers Dr Michael Roach and Garry Davidson can produce far more detailed theories on the origin of the Earth’s ocean floor: “This is currently a widely discussed topic, and it is hoped that information gleaned from the research occurring on Macquarie Island will help geologists find mineral deposits in similar rocks on mainland Australia.”

The final published magnetic map was produced by University of Tasmania this year.

ALUMNI NEWS December • Issue 29 - 2005
Growing up in South Africa I can only describe myself as something of a fanatical surfer. With a few close friends we had been carving it up for years – long before a couple of Americans “discovered” our home breaks at Jeffreys Bay and Cape St Francis in the now famous 60s movie – The Endless Summer. Of course the surf wasn’t good every day so I taught myself the fine art of building surfboards to stave off the boredom of watching mushy onshore conditions. At this point I’ll introduce my late father. He thought there was opportunity in all of this so he offered me the chance of establishing a surfboard building business. Incredibly I turned him down. No kidding. With all of the wisdom of your average 17 year old I reasoned that there was no money to be made out of surfing or more particularly from selling surfboards. Of course I hadn’t factored into my reasoning how surf fashion would take hold to the extent that it has. Nor could I predict the invention of windsurfing and paragliding and all of the other things that have made surfing the culture and multi-million dollar industry that it is today.

Not to be deterred, my father then suggested I should go to university. My Dad didn’t have a lot of advice to give me in this department. He argued however that a university education was a sure way to get a top job. Not entirely convinced I agreed to go to university, but only if I could do oceanography – something that I’d heard about from a friend during national service. This I reasoned would keep me close to the sea that I loved so much.

No one had told me that oceanography was all maths and physics and so six months into it I wisely decided to major in geology. I can hear murmuring: Why would he do this? How was geology going to keep him close to the sea?! I really don’t know why I made this choice other than to say that it was really the most interesting subject I had ever done – and our lecturers were inspirational!

So, I completed a major in geology and soon found myself in a job in the Namibian desert with the mining giant Rio Tinto, hanging onto a scintillation counter looking for uranium deposits. The way that machine buzzed at times I’m sure we were being micro-waved on the inside let alone being cooked on the outside under the desert sun. Surfing was a mere mirage on the horizon and not surprisingly I lasted six months. So it was back to the University of Cape Town, this time to complete an honours degree in marine biology.

It was around this time that I got a strong sense that my father was starting to see me as a bit of a drain on his economy. While he never quite said it I was certainly shaping into something of a disappointment – because after graduating with an Honours degree in Marine Science there were no jobs on the horizon, let alone well paid managerial ones that all the university graduates of his era seemed to get.

Fortunately, although I hadn’t figured it out myself, my Professors must have seen a glimmer of hope and suggested I stay on and begin a post-grad degree.

It was around this time that I took up SCUBA diving - spending a lot of time out of breath underwater after wiping out probably influenced
my decision to learn to dive and breathe underwater. This did two things; it deepened my love for the sea, no doubt about that, but more importantly it provided me with the tool I had been looking for: I was now able to spend all of my time in the sea studying the ecology of inshore fishes – and soon I was being paid to do it as well!

So it goes something like this – I really should have opened up a surf shop but instead went to university, where I wanted become an oceanographer but became a geologist, which I never really gave a chance, and so I ended up as a Marine Ecologist and Fisheries Scientist. Then, when I really had found my niche in life, I moved to Australia where I had to start again, happily eventually joining the University of Tasmania as Director of TAFI.

It has been an interesting journey and I think my Dad would have been proud of it.

When I look back on all of this, I think there are a few things that I could share with new graduates as you embark on the next stage of your lives.

The first of these is that without a plan you might still succeed. But trust me, having a strategic perspective of where you want to go and where you want to be is a much safer idea. I really think I was lucky, but you can make your own luck by setting yourself clear goals, at work, at home and at play – give yourself something to strive towards – a stretch target. You will be surprised at the results.

The second is really as much about your degree as it is about education in general. How a university education differentiates you from the next person is that it demonstrates that you are able to think. I don’t believe that any of you could have got this far without this skill. Your degree should also demonstrate to potential employers that you are able to apply yourself and that you are hard working. It takes hard work and application to do a degree and you should trade on these qualities when you get out into the workforce. And while we are increasingly being led down the path of practical outcomes and skill-based education, please don’t lose touch with your ability to reflect on things in an enquiring way. Science is after all a search for truth. It never ceases to amaze me how ill informed the public debate on so many issues is: forestry, marine protected areas, global warming and the health of our waterways are all examples that immediately spring to mind. As scientists we need to constantly inform these debates – too few of us are prepared to stand up and be counted in this way I am not talking about advocacy – I’m talking about informing the science of the debate.

The third is the importance of partnership. I think I learned very early on in my own career the importance of collaboration and teamwork – perhaps this was inevitable as a diving scientist, where buddies were essential.

You will all no doubt have heard of the phrase “publish or perish” – it drove a generation of academics before you. However, as a colleague recently remarked, the days of the university being full of curiosity-driven boffins are well and truly over – that “slip the cheque under the door and leave me alone mentality” no longer prevails in most parts of the University. Globalisation, the web, ICT have all driven or contributed to the change. To keep up one needs to be outcome focused, to develop an ability to work with and through others to achieve outcomes. You should all recognise the importance of networks, partnership and collaboration. Today we rather talk about partner or perish. This is certainly well illustrated by my organisation – the Tasmanian Aquaculture and Fisheries Institute – a partnership between the State Government and this University.

Combining the strengths of both organisations, we have been able to almost treble the dollars and research outcomes for Tasmanian fisheries and aquaculture industries with major benefits along the way for living marine resources and the community in general. This could not have happened with a simple summation of the work being done by the Government and the University on their own.

The University, CSIRO, Antarctic Division, National Oceans Office and various State Departments within 10 kilometres of where we are seated constitute the largest concentration of marine scientists in the Southern Hemisphere. Yet it is only fairly recently that we have collectively recognised the huge potential of joining forces – watch this space, as Hobart becomes the marine science capital of Australia – through partnership.

Hugh Mackey, author of that wonderful book “Right and Wrong”, puts this well, albeit in a different context. He says, “Social proof – allowing ourselves to be influenced by the example of others – is a powerful instrument of moral formation (for good or ill), which is why our choice of friends and colleagues is crucial. If you spend all of your time with self-centred, materialistic hedonists, moral corner cutters and dollar-chasers, you will soon come to feel that such attitudes are normal from there it’s a short step to believing that they can be justified or even that they are right”.

So my advice is:

• Begin the next stage with a plan
• Don’t forget your talent for thinking about the world around you and don’t be constrained by your qualification. You will succeed in whatever you choose to do if you apply yourself in the way you did to get here today
• Choose your friends and partners well – this will pay handsome dividends
• And remember; we at UTAS are your extended family.

On behalf of the University, let me again say how proud we are of your achievements. As you embark on your next challenge remember that your association with the alma mater has only just begun. We hope that you will long be ambassadors for this University.
The Companion to Tasmanian History

Over the last two and a half years, the Centre for Tasmanian Historical Studies has been compiling The Companion to Tasmanian History, an encyclopedia-style volume covering every topic and every period of Tasmania’s past. The most eminent historians for each topic were asked to write articles, which range in length from 125 words to 1500, and in topic from Aboriginal Art to Zoos. Controversy is not avoided; there are various articles on, for example, forestry, and the fabrication or otherwise of Aboriginal history. There are also eighteen thematic articles, studying major topics in greater depth, by leading historians. Topics here range from Aboriginality (Jim Everett) through Britishness (Peter Boyce) and Identity (Henry Reynolds) to Van Diemen’s Land (Ros Haynes).

The 418 authors cover a range of occupations, from farmer and housewife to professor, though naturally many come from the University of Tasmania, from many different disciplines. A number of post-graduate students were asked to contribute, to include a range of scholarship. Most authors are from Tasmania, but all Australian States are represented.

This 568-page volume is a landmark in Tasmanian publishing, and a major contribution from the University to Tasmanian historical scholarship.

The Centre for Tasmanian Historical Studies is offering UTAS Alumni a special discount price. If you would like to purchase a copy, contact the School of History and Classics, on (03) 6226 2298. You can also purchase a copy from the UTAS Alumni e-commerce site at www.utas.edu.au/alumni/eComm/
Ten more years of TAFI

The State Government and UTAS have signed a new Joint Venture Agreement to continue the Tasmanian Aquaculture and Fisheries Institute (TAFI) for another 10 years.

The initial agreement, signed in 1998, aimed to establish a centre of excellence in applied aquatic research and support the development and sustainable management of Tasmania’s living marine resources.

The Tasmanian Minister for Primary Industries and Water, Steve Kons, said State Government support for ventures such as TAFI increased the recognition of Tasmania’s research capabilities.

“TAFI is recognised as a successful partnership model between government, university and industry,” Mr Kons said.

The Vice-Chancellor said the TAFI partnership was valuable in many respects.

“The TAFI has raised the profile of marine and freshwater science in Tasmania.

“Taking advantage of the uniqueness of our location, the skill of our people and the concentration of marine scientists in Tasmania, the TAFI joint venture is a key aspect in developing Hobart as the marine science capital of Australia.”

“It not only benefits UTAS as an institution, it places Tasmania on the world map,” Professor Le Grew said. The new agreement between the State Government and University is for an initial period of ten years (with an option for a further ten years).

BRANCHING OUT

New CRC Sustainable Forest Landscapes

UTAS has been successful in a bid for a brand new Cooperative Research Centre in Sustainable Forest Landscapes.

In a collaboration worth $87 million over the next seven years, the new CRC brings together the six major universities providing forestry education in Australia, the CSIRO, Tasmanian forest research organisations and 14 industry partners. These partners will provide $60 million to the Centre while $27 million of the funding will come from the Australian Government.

Professor Rod Griffin, CRC Director, said that the centre will provide the science to back up industry planning and the development of forest policy in Tasmania and across the country.

“The new CRC for Sustainable Forest Landscapes will apply next generation technologies to challenges across the forestry business chain - from site selection to delivery of wood at mill gate.

“There will be a strong focus on the interactions between wood production systems and their wider environment - not just how the systems affect water, soil and air but also how the industry interacts with the local community and biodiversity on a global scale.”

The new CRC will help provide an increased reliability of supply and greater market competitiveness for Australian wood products through an improved ability to grow a higher quality, more uniform resource.

It will also encourage wood producers to adopt practices which conform to certification standards and lead to increased community understanding of the role of the forest industry in regional Australia.

In Tasmania the collaborators include Forestry Tasmania, CSIRO Forestry and Forest Products, Gunns, Forest Practices Board, FFIC, Norske Skog, the Department of Economic Development and Forest Enterprises Australia.

Around half of the total participant contributions are from within Tasmania.
Louise Yaxley is making solid progress, albeit slow. “I’m halfway to being fully recovered,” said Yaxley from her home in Launceston, Tasmania, following an afternoon water physiotherapy session. “It’s slow progress, but it’s happening, and we’re still not sure how much extension I can get in my arms just yet.”

Yaxley suffered severe injuries to her legs and arms in the accident, and although her legs have healed very quickly, her arms are still quite some way from full recovery. “My left wrist was severely damaged, and I’ve got seven screws in there. I can feel them moving about - but it’s better than having my wrist fused, which is what they normally do.”

More than four months after the accident that left Yaxley in a coma, the swelling on her wrist has gone down enough for her to wear a wristband in memory of teammate Amy Gillett, who was not so fortunate. It is a small but significant step on a daunting road to recovery for the 24-year-old.
Another is provided by the tiny jar sitting on the mantelpiece of her Launceston home.

It contains two small cubes of glass that had worked their way free from her scars yesterday morning. They are fragments of the windscreen from the car that struck Yaxley and five other Australian cyclists while they were riding near Leipzig.

"The nurse is still removing bits of glass daily," she said.

"It's like shrapnel. I know I've got four big chunks still left in my arm. We'll wait and see if they have to be removed. Provided it's not hurting, I could live with them being there."

Yaxley is already walking up to two hours a day, and she hopes to be running soon. "I try and do two sessions of at least 40 minutes a day," said Yaxley. "When I'm finished I look at my watch and make sure I've completed a full session."

In the next few weeks she will visit the plastic surgeon, which is "a big mental step." But it's a big part of the recovery process, albeit a scary one. "I think the thing I'm worried about the most is wearing knicks again. My arms and legs were pretty badly damaged, and I don't think the actual riding will be the problem, it'll be having people see the scars," said Yaxley. Even though the speed of her recovery has plateaued lately, Yaxley says her recovery in the first three months after the crash has "surprised everybody."

But it's time for the hard yards now, and Yaxley knows it, saying, "The doctors couldn't believe it [the speed of her initial recovery], but the lengthier healing starts now." Doctors are still not sure how much she'll be able to extend her arms, affecting her ability to hold onto handlebars.

She's staying enthusiastic, however, and using her recovery so far as motivation for the battles ahead. "Staying positive is the only way to be. I think how lucky I am to be here. Amy wasn't so lucky, but I have been, so I have to stay positive."

Yaxley's recovery has been very ably assisted by boyfriend Mike, and parents Annette and Brian. With Mike returning to work, Yaxley's mother has become a home nurse for her daughter. "Mum's moved in and is like a home nurse. I haven't got much strength back yet, so mum helps out and she's been excellent. Everyone's been unbelievable."

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Yaxley would be keen to use her experiences to raise awareness of cyclists' safety in the media, and although she hasn't been approached to do anything officially, she lets people know how important the safety of cyclists is. "Anytime I get the opportunity - when friends are around or something like that - I let people know how important safety is. I don't let my boyfriend use his phone in the car, because it was probably that kind of distraction that caused the accident in Germany."

And Yaxley's aware that safety affects the motorist as well. "There are two sides to the coin. The drivers have to live with what's happened for the rest of their lives. Safety's definitely something that has to be pushed."
When one talks of Rhonda Ewart’s 47-year association with the University of Tasmania, the word ‘vocation’ as an alternative to ‘employment’ immediately springs to mind. Her association with the University has had that sense of commitment and intimacy that truly characterises one who has been called to assume a life-long role rather than undertake employment in a chosen career.

Very few members of staff at the University have given as full a lifetime of service to the institution as Rhonda Ewart. When Rhonda joined the University in 1958 it is unlikely that even she perceived the major role it would play and the contribution she would make to it in the ensuing 47 years of her life.

Rhonda has demonstrated what it means, in the fullest sense, to be a member of the collegiate entity that is the University of Tasmania. She has been a loyal and dedicated employee since the beginning, working efficiently and effectively in a variety of roles, providing support to countless students and a legion of colleagues.

Ever positive, caring, energetic and perspicacious, she has worked tenaciously and effectively to unravel problems, defuse potential difficulties, and to ensure that the administrative apparatus of the University worked the way it was meant - when many of us would have thrown up our hands and taken refuge behind the impulse to be bureaucratic.

In many ways, Rhonda is symbolic of what the University of Tasmania should be about – always visible, always assisting, advising, counselling, caring.

Since formally retiring in 1997, she has continued to work as an ambassador for the University maintaining strong and positive links with graduates and friends, working with Scholarship students, conducting tours of the campus, assisting with the organisation of events, and more recently the University Women’s Forum. Moreover, Rhonda is a critical link in the institution’s corporate memory.

It is fitting, as one who has been an integral part of the life of this University for over 47 years, to honour her contribution by admitting her to the honorary degree of Master of Arts.
In a breakthrough for renewable energy research, UTAS engineers have created a way for diesel engines to have hydrogen running through their veins.

The Hydrogen and Allied Renewable Technology research group, based at the University of Tasmania’s School of Engineering, has discovered that running a compression engine with a combination of diesel and hydrogen increases power output, drastically cuts emissions and massively reduces diesel consumption.

The discovery, at the specially-designed Hydrogen Laboratory, the building of which was sponsored by Hydro Tasmania, has the potential to be used for both domestic and commercial purposes.

Associate Professor Vishy Karri said the prototype was a gigantic step forward towards a hydrogen economy.

“This research positions Tasmania in a prominent place in the research community,” he said.

Dr Karri said that adding just a “spoonful” of diesel and running the generator with hydrogen resulted in a 20 per cent increase in power output.

“We can reduce diesel consumption by 80 per cent without any loss of power. In fact, there is such an increase in power output that it is usually only restricted by the generator itself!

“The mixing of both hydrogen and diesel in the same combustion chamber is a revolutionary world-first. Other conversion kits on the market are designed to be ‘all or nothing’ – either 100 per cent diesel or 100 per cent hydrogen. There is nothing available for diesel engines that is specifically for diesel-hydrogen gas mixtures.”

Dr Karri said one of the most exciting aspects of the system is that it is retro-fittable.

“Instead of creating a whole new engine we have designed a conversion procedure that can be fitted to any existing diesel infrastructure.

“The system will give any diesel engine the ability to generate 20 per cent more power, and can also reduce ongoing diesel consumption by up to 80 per cent. This is particularly relevant when there is a shortage of other renewable energy and fossil fuel sources in the world,” Dr Karri said.

An innovative Mechatronic Controlled Injection Unit, developed by the UTAS team, controls the flow of hydrogen into the engine.

Research scholar and program leader Dr Hafez A Hafez said the diesel-hydrogen conversion kit would not just help the environment by reducing diesel use.

“It will also have a huge environmental influence by reducing exhaust gas emissions. The modular aspect of this system means that remote areas with a large established diesel infrastructure will be able to conform to current and future emissions regulations,” said Dr Hafez.
In an era in which the small island State of Tasmania has accepted the challenge of competing against other Australian States at the highest level of national cricket competition, the TUCC remains very much an older style amateur club. Its administration and support staff, as well as its playing list, are still largely composed of graduates and students, imbued with the traditions and attitudes of university cricket.

At the same time the TUCC is looking to the future with its ambitious objective of establishing a Scholarship Appeal Fund. The aims of the appeal are to provide financial assistance to promising young cricketers to enable them to undertake and complete university studies.

Launched two years ago, the TUCC Scholarship Appeal has reached in excess of $17,000. However, contributions have stalled, and the immediate challenge is to reach the initial target figure of $30,000. Your support for the TUCC in meeting this initial target would be greatly appreciated. All donations made to the University of Tasmania and requested to be allocated to the TUCC Scholarship Appeal are tax deductible.

So far most contributions have come from past players. If you’re a former cricketer you may consider making a donation based on the number of runs you scored, wickets you took and catches you made!

If you are unsure of your TUCC career record, every player who has ever played for the club can look up the Player Database at www.tucc.org.au under ‘Statistics’. A TUCC Scholarship Appeal form can be also found on the club website.

If you did not play cricket with TUCC, but love the game or the University or both, consider assisting this most worthy cause and take pride in your support for one of the University’s most successful and enduring institutions.

In the last 40 plus years the club has not only cemented its position as a permanent member of the TCA, but has achieved an enviable record of outstanding achievement.

Tasmanian State players have included English Test player John Hampshire, our first First Grade premiership coach Graeme Mansfield, and student players Craig Brown, Ray Brown, Bruce Doolan, Graeme Farrell, Mike Norman, Bob Panitzki and Ken Thomson.

Since Tasmania’s entry into the national competition in 1979, our State representative list has expanded to include Roland Butcher, Jamie Cox, Graeme Cunningham, Tony Daly, Dene Hills, Josh Marquet, David Milins, Mark Ray, Gavin Robertson, Brian Robinson, Greg Rowell, Brad Thomas, Rhett Lockyear and Darren McNees.
ROCK AND ROLL!
UTAS digs up $30 million for Ore Research

The prospects are looking good for Tasmanian ore research.

The Australian Government is funding a Centre of Excellence in Ore Deposits at the University of Tasmania.

The Government has committed $15 million over the next five years, and a further $15 million is guaranteed by the minerals industry and collaborating universities.

The Vice-Chancellor, Professor Daryl Le Grew, said the funding was a major coup for UTAS.

“This recognises that UTAS has the top Geology School in Australia and one of the best in the world.

“With Centre of Excellence status, and all that it brings, Tasmania will become the global leader in mineral exploration research and technology,” Professor Le Grew said.

Professor Ross Large, the Director of the Centre of Excellence, said the funding would enable new directions in research to complement current research strengths at CODES.

“Exploration geophysics is the targeting of deep earth resources. This will have direct relevance to finding buried ore deposits in western Tasmania. A chair in Exploration Geophysics and other key appointments will be made,” said Professor Large.

“Geometallurgy is the relationship between ore formation and separating ore into valuable substances. This new research will improve metal recoveries and the profitability of mining operations. There is currently a gap in Australia’s research capability in this area. This new research will include a focus on better mineral waste disposal from mine sites.”

Professor Le Grew said UTAS would be the lead institution in the new centre.

“70-80 per cent of the national centre will be based in Hobart. The budget for ore deposit research at UTAS will increase from around $4 million per year to nearly $7 million. Academic staff numbers will grow from around 25 to 45, and postgraduate students from 30 to 45,” he said.

The State Government, through the Department of Infrastructure and Resources, will provide $200,000 of additional funding for research directly related to improving Tasmanian mineral resource discovery rates.

Research in the new centre will be linked with other internationally recognised research groups, including Colorado School of Mines, John Hopkins University, University of British Columbia, Julius Krutttschnitt Mineral Research Centre at University of Queensland and researchers from ANU, Melbourne University and CSIRO.

The minerals industry is backing the new centre, contributing over $8 million for research. The main contributing companies are BHP Billiton, Newcrest, Anglo American, Zinifex, Newmont, Barrick, Teck Cominco, AngloGold Ashanti and RioTinto, as well as the Minerals Council of Australia.
Thank you to all of those wonderful graduates who replied to our previous advertisement. However we need more!

It’s that time of the year when the focus is on graduate destinations and we would love you to send us a postcard (using black pen) and let us know where you are and what you are doing.

All we need is a brief description of what your job currently involves. If you can squeeze in a little bit about your career journey – all the better!

Graduate profiles are highly valued by future students. Profiles provide information on career opportunities and outcomes that provide a valuable resource for students in our school presentations, website and publications.

Recent graduates are especially encouraged to apply!

If you are happy for us to get in contact with you in order to do a graduate profile, then please include your contact details.

Send a postcard to:

Viv Ride, School Liaison
University of Tasmania
Private Bag 52
HOBART TAS 7001

If you can answer yes to the following questions or know of someone who can then we need you (or your friend/son/daughter/neighbour):

- Are you a graduate of the University of Tasmania?
- Do you want to help young people?
- Do you want to assist them to make an informed choice about their future?

THE FRIENDS’ SCHOOL HOBART

Leading-edge school on the quiet rim of the world

Friends’ School Hobart is a pre-K to 12 co-educational school with residential facilities. Our students and staff live and work in Tasmania’s quiet, clean and natural environment.

Established by Quakers in 1887, Friends’ has a reputation for academic excellence. In 2004, 98% of our final year students qualified for university entrance.

Academic Excellence

At Friends’, we believe in providing the widest possible range of educational opportunities. That’s why we offer our Year 11 and 12 students the choice of the International Baccalaureate, the Tasmanian Certificate of Education (TCE) and Vocational Education and Training.

We’d like to tell you more about Friends’ School. For a copy of our prospectus or to arrange a visit, please contact us.
All of Australia’s marine science data will soon be accessible through a massive online database being developed by UTAS.

**Fishing for data**

“Tools for entry and discovery of data will be developed to international standards, and be flexible enough to apply to any kind of marine data whether it be geological, chemical, biological or whatever.

“For example, for fifty or sixty years people have been looking at zooplankton on Australia’s eastern seaboard. The ability to download an amount of data that covers a long time sequence could be enormously valuable, particularly for answering questions about one of the key signatures of climate change.”

Professor Johnson says a project of this magnitude throws up some interesting challenges.

“There are other large DEST funded projects feeding directly into BlueNet. One deals with authentication and access. How do you ensure the people getting access to all of these data are who they say they are? Others will focus on issues to do with managing open source software and the IP issues associated with data access, and the stability and longevity of digital data repositories,” he said.

Academic partners include the University of Sydney, University of Melbourne, University of Queensland, University of Western Australia, Flinders University, University of Adelaide, James Cook University, the Australian Partnership for Advanced Computing and the Tasmanian Partnership for Advanced Computing.

“Each university will be able to decide what data it puts onto the network repositories, or whether they wish to host a repository as a node of the network. The whole idea is that people will see the combined benefit to everybody. The Commonwealth agencies have taken a lead role in this. They have all agreed to share their data,” Professor Johnson said.

Regardless of whether university researchers contribute to BlueNet or not, they are still free to use BlueNet resources.

The vision is that the network will expand to ultimately encompass all of Australia’s marine data, including marine data held or generated by universities and other institutions outside Australian government agencies.

The BlueNet project aims to provide a virtual data centre to support long-term curation and management of data for Australia’s marine science researchers.

BlueNet will link vast data repositories and marine resources that currently reside in academic and government institutions both in Australia and overseas.

It is an extension of the nation’s first online, virtual facility – the Australian Ocean Data Centre Joint Facility (AODCJF). The AODCJF is a brand new venture between the main Commonwealth agencies engaged in marine science, and BlueNet will link universities into the network.

The AODCJF is trying to create a virtual data centre with web-based access, a ‘single sign-on’ log-on process, powerful and flexible search tools, and real time access to the data managed by these agencies.

Professor Craig Johnson, from the UTAS School of Zoology, is the chief investigator for BlueNet.

“Up until now universities have not been particularly good at managing data. We are more focused on project outcomes. So the whole idea of BlueNet is to connect universities to a national grid, and to provide them with a data management and curation service. This will facilitate knowledge discovery, and allow everybody access to the vast amounts of marine science information generated every year.
We’d really like to let other Alumni around the world know what you’ve been up to.

If you do too drop us a line at media.office@utas.edu.au and tell us where you are, what you’re doing, when you graduated and what your degree was in.

**Grapevine**

1960

**Thomas Crawford** graduated BA in 1963. The Thomas Crawford Trail will be established to perpetuate the memory of Tom, the first American to graduate from UTAS. The Thomas Crawford Scholarship currently enables young people from Australia, Canada, Chile, Czech Republic, Denmark, Sweden, United Kingdom, and the US to study at UTAS.

1970

**Julian and Kathy Stockwin** are currently living in Devon. Kathy (nee Stackhouse) graduated BA Hons in 1975. Julian graduated MA 1975. They are working as a full-time creative team producing Julian’s historical novels featuring Thomas Kydd. The seventh book in the best-selling series is due out next year.

**Philip Blake** graduated DipEd in 1976. Philip is an author, radio and television writer; Australian Literature Board Fellowship winner; national magazine columnist and one of Tasmania’s most highly-awarded advertising writers.

**Noel White** graduated PhD in 1976. After working as BHP’s Chief Geologist he set up an independent consultancy based in Brisbane in 1999. Since then he has been a consultant for the World Bank Group and mining companies. He is an independent board member of Gold Aura Pty Ltd., a Brisbane-based company listed on the Australian Stock Exchange.

**Dr Rob Banks** graduated BAgSc (Hons) in 1979. Dr Banks is Manager of Genetic Improvement with Meat and Livestock Australia Ltd. This year he was awarded the prestigious Clunies Ross Award and has been described as ‘one of the world’s most successful genetic scientists working in agriculture.’

1980

**Archbishop Phillip Aspinall** graduated BSc in 1980. Archbishop Aspinall of Brisbane was elected Primate of the Anglican Church of Australia. He will hold the position until 2007.

**Paul Cossum** graduated PhD in 1985. Paul is chief executive of Proacta Therapeutics a pharmaceutical developer of breakthrough drugs to treat cancer based in San Diego and Auckland.

**James Shugg** graduated BEd in 1985 and works as the Westpac Bank’s economist in London. His responsibilities include advising the bank’s European and US clients on economic and political developments in Australia and New Zealand. James is also a regular guest on the ABC Overnights radio program.

**Ross Mallinson** graduated BSc in 1987. Ross, who received serious head injuries in the London bombings on July 7, has made a remarkable recovery. He has returned to full-time work as project manager in IT and even more remarkably, recently completed a 280 mile charity cycle ride in Sicily.

**Alison Moore** graduated BA in 1988. Alison runs her own company specialising in guided day walks helping visitors experience some of the unique landscapes, plants and animals in the north-east of Tasmania.

**Daniel Zeeman** graduated BA/LLB in 1988. Daniel has just stepped down after one year as President of the Tasmanian Law Society. He is a partner in the Hobart law firm Butler McIntyre & Butler.

1990

**Bob Patterson** graduated GradDip Env Studies in 1990. Bob and his wife Anthea run the Hartzview Winery at Gardener’s Bay. Bob is also inventor of the BiPu, or Bio-remedial In-field Personnel Unit, a low-cost, environmentally friendly primary sewage treatment system. Forty of the units were sent to temporary camps in Bandah Aceh following the devastating Boxing Day tsunami.
Diane Tompson graduated BEd in 1992 and was named 2005 Telstra Tasmanian Business Woman of the Year. Diane is the General Manager of Novaris, a manufacturing business which custom designs products to protect electrical equipment against lightning strikes. Diane is also a member of the State Government’s Tasmanian Agreements Training Committee.

Dr Michele Sale graduated PhD in 1995. Living and working in the USA, Michelle’s main research focus is to identify genes that contribute to diabetes risk in African Americans, who have twice the risk of developing diabetes.

Alister McKinnon graduated BAppSc in 1996. Alister has gained renown as a landscape photographer. His solo exhibition Island in Focus showed in Hobart and toured regional Tasmania. Alister is also the Northern Region Coordinator for Community Landcare.

Major Ana Rokomokoti graduated BA/LLB in 1997. Major Rokomokoti is a military lawyer with the Fijian Army. She provides legal opinion to and appears on behalf of the Commander and the Royal Fijian Military Forces and was co-counsel for the team that prosecuted 58 soldiers following the coup in 2000.

Simon Cuthbert graduated BFA in 1998. Simon is a Tasmanian based photo media artist and has an extensive national exhibition history with a growing international profile. Simon won the 2005 Island Art prize.

2000

Dr Thomas Edwards graduated MBBS 2000 and is currently enrolled in postgraduate research at Cambridge University. He is a champion rower and is currently President of the Cambridge Rowing Club. Tom is the only Tasmanian to have held that position and one of only a few Australians.

Anthony Scotney graduated BSc in 2002 and has established his own software development company JadeLiquid, which has become one of Tasmania’s most successful emerging technology companies, receiving several industry awards. Anthony also won one of the 2005 Tasmanian Young Achiever awards.

Monte Mumford in Minnesota

Long-time Musical Director of the University’s Community Music Program (UCMP) and MMus graduate, Monte Mumford has moved to St Paul, Minnesota to take up the post of Associate Professor of Music at Northwestern College.

In twenty years the UCMP, under Monte’s direction, has grown to six ensembles catering for some 200 participants in various stages of musical development. The program’s top ensemble, the University of Tasmania Wind Orchestra is now recognised nationally for its performance standards and the program itself is a successful university community outreach program.

His wife, Kathy Mumford (DTeach (TCAE), GradDipAppComp (TSIT) and GradDipProfMgmt (UTas), resigned her position at the University as Executive Officer, Equal Employment Opportunity, to join him.

Associate Professor Henry Finlay 1922 – 2005

A valued member of the Law Faculty, Associate Professor Henry Finlay passed away shortly before his 83rd birthday.

Henry had a long association with the University, having graduated in law in 1957. He commenced an academic career at Monash University in 1967, following stints in legal practice with the Tasmanian Crown Law Department and subsequently the Commonwealth Attorney-General’s Department.

In a short time Henry established himself as the leading Australian family law academic of the era, in 1972 co-authoring the first Australian textbook to cover the subject of family law systematically after the enactment of the (then) Matrimonial Causes Act 1959. This led, amongst other things, to the principal authorship of one of the leading texts on Australian family law under the Family Law Act 1975.

Henry held the position of Associate Professor at Monash University until his retirement in 1988, when he and his wife Lea returned to Hobart, eventually purchasing the same house they had owned in the 1950s. During his “retirement” Henry devoted considerable time to fostering his research interests, in both family law and history. This culminated in the release of his unique work, published earlier this year by Federation Press, To Have but Not to Hold: A History of Attitudes to Marriage and Divorce in Australia.

In retirement Henry was an active participant in Law Faculty life. He was involved in relief teaching in the field of family law. In particular, Henry’s tenure as moot master saw law school students win the Australian Family Law Mooting competition on multiple occasions.

A true scholar, Henry’s colleagues at the Law Faculty will miss not only his scholarship but his vibrant personality.

With thanks to Gino Dal Pont from the UTAS School of Law.
Marie Edwards 1925 – 2005

Artist and benefactor Marie Edwards passed away in September 2005. The University of Tasmania Foundation expressed its sorrow at the passing of Marie Edwards. She is remembered for her artistry and her generosity. As a committed painter on the ascent in the 1970s Marie was one of very few women artists from this State working in the area of abstraction. Illness in no way dulled her will to create and to contribute.

Marie donated a substantial body of her work to UTAS. We gratefully acknowledge Marie’s commitment to Tasmania’s creative community and her lasting legacy and extend our sincere condolences to her family.

The University Foundation is using proceeds from the sale of Marie’s works to create the Marie Edwards Scholarship in Fine Arts.

A selection of works for sale can be viewed through this site or in person by arrangement with the Foundation.

Details on the next public exhibition and sale of Marie’s works will be posted on the Foundation website when available. Send your details to university.foundation@utas.edu.au to be added to our event mailing list. Many of Marie’s artworks can also be viewed at www.utas.edu.au/foundation/marieedwards/

Dr Mary Frances Mallett (Aunty Molly) AM 1926 – 2005

Dr Mary Mallet, or “Aunty Molly” was an active and much loved member of the Aboriginal community in Tasmania. A regular visitor to the University’s Riawunna Centre in Launceston, she demonstrated the very essence of reconciliation through her generosity of spirit and wisdom.

A writer, storyteller and poet, her commitment to education was substantial. Her stories have been published and disseminated in many formats and have contributed significantly to Education Department resources at a number of levels.

Aunty Molly was an inspiration to all students with whom she willingly shared her wisdom. She was a champion of Aboriginal education and a tireless promoter of the value of higher education and its contribution to knowledge and understanding for both Aboriginal and non-Aboriginal students.

In 2001 in recognition of these accomplishments and the broad regard in which she is held Aunty Molly was awarded an Honorary Doctorate by the University of Tasmania, an achievement of which she was most proud.

Dr Margaret Scott 1934 – 2005

Council, staff and students of the University of Tasmania would like to express their regret at the passing of Dr Margaret Scott.

Dr Scott, an academic, poet, essayist, novelist and comedienne joined the English department at the University in 1966.

She went on to become a senior lecturer, became head of department in 1987 and retired in 1989. From 1990 Dr Scott was an Honorary Research Associate with the University. She was awarded an honorary degree of Doctor of Letters in 1999.

Students flocked to her lectures, which were remarkable for their mix of scholarship and humour. Dr Scott’s inimitable rhetorical style and consummate timing would ensure the lectures were both academically rigorous and often uproariously comic.

Dr Scott, as well as publishing poetry and books, served the Tasmanian literary community in many ways, as a panel member; peer reviewer for funding bodies, editor; society patron and Board member of Island magazine.

She will be sorely missed by all who had the pleasure of knowing and working with her.
The Department of Economic Development’s Research Partnerships Program is aimed at raising Tasmania’s relatively low level of business expenditure on research and development.

This program will support collaboration between Tasmanian-based enterprises and local and other research institutes on a project basis.

The program aims to support the development of innovative products, processes or services that have the potential to be commercialised. It will also support the adoption of a new technology by industry.

Businesses that have established a partnership agreement with a research institution may apply for financial assistance up to $150,000. This funding will be offered on a 1:1:1 (Industry: Research Institution: Government) basis to contribute to costs directly relating to the project.

For further information about the program and to access guidelines and application forms please contact:

Research Partnerships Project Officer, Innovation, Science & Technology
Department of Economic Development
Tel (03) 6233 5743 - Fax (03) 6233 5800 - GPO Box 646, Hobart, TAS 7001
Website: www.development.tas.gov.au/innovate.html
Email: innovations@development.tas.gov.au
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